PATENT COOPERATION TREATY

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From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

PCT

To:

Kurig, Thomas
Bavariastr. 7
D-80336 München
Germany

BECKER KURIG STRAUS
BAVARIASTRASSE 7 · 80336 MÜNCHEN

12. Feb. 2004

WV: ..... / LF: .....

NOTIFICATION OF TRANSMITTAL OF INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Rule 71.1)

Date of mailing *(day/month/year)*	10-02-2004
Applicant's or agent's file reference: 50891 WO	IMPORTANT NOTIFICATION

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/IB2002/001044	03-04-2002	

Applicant
Nokia Corporation
et al

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.

2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.

3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

4. **REMINDER**

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in som Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

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Name and mailing address of the IPEA/	Authorized officer
Patent- och registreringsverket Box 5055 S-102 42 STOCKHOLM Facsimile No. 08-667 72 88 Telex 17978 PATOREG-S	Inger Nilsson Telephone No. 08-782 25 00

Form PCT/IPEA/416 (July 1992)

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 50891 WO	FOR FURTHER ACTION See Form PCT/IPEA/416	
International application No. PCT/IB 2002/001044	International filing date *(day/month/year)* 03-04-2002	Priority date *(day/month/year)* ---
International Patent Classification (IPC) or national classification and IPC H04Q 7/22		
Applicant Nokia Corporation et al		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 5 sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising:
   a. ☒ *(sent to the applicant and to the International Bureau)* a total of 3 sheets, as follows:
      ☒ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
      ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
   b. ☐ *(sent to the International Bureau only)* a total of (indicate type and number of electronic carrier(s))
      _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).
4. This report contains indications relating to the following items:
   - ☒ Box No. I Basis of the report
   - ☐ Box No. II Priority
   - ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
   - ☐ Box No. IV Lack of unity of invention
   - ☒ Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
   - ☐ Box No. VI Certain documents cited
   - ☐ Box No. VII Certain defects in the international application
   - ☐ Box No. VIII Certain observations on the international application

Date of submission of the demand	Date of completion of this report
21-11-2002	03-02-2004
Name and mailing address of the IPEA/SE Patent- och registreringsverket Box 5055 S-102 42 STOCKHOLM Facsimile No. +46 8 667 72 88	Authorized officer Nabil Sebaa /LR Telephone No. +46 8 782 25 00

Form PCT/IPEA/409 (cover sheet) (January 2004)

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/IB 2002/001044

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This report is based on a translation from the original language into the following language _____, which is the language of a translation furnished for the purposes of:

☐ international search (under Rules 12.3 and 23.1(b))
☐ publication of the international application (under Rule 12.4)
☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the **elements** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report):*

☐ the international application as originally filed/furnished

☒ the description:

pages 1-9 as originally filed/furnished
pages* _____ received by this Authority on _____
pages* _____ received by this Authority on _____

☒ the claims:

pages _____ as originally filed/furnished
pages* _____ as amended (together with any statement) under Article 19
pages* 1-3 received by this Authority on 11-04-2003
pages* _____ received by this Authority on _____

☒ the drawings:

pages 1-2 as originally filed/furnished
pages* _____ received by this Authority on _____
pages* _____ received by this Authority on _____

☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

☐ the description, pages _____
☐ the claims, Nos. _____
☐ the drawings, sheets/figs _____
☐ the sequence listing *(specify)*: _____
☐ any table(s) related to the sequence listing *(specify)*: _____

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

☐ the description, pages _____
☐ the claims, Nos. _____
☐ the drawings, sheets/figs _____
☐ the sequence listing *(specify)*: _____
☐ any table(s) related to the sequence listing *(specify)*: _____

* *If item 4 applies, some or all of those sheets may be marked "superseded."*

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/IB 2002/001044

Box No. V **Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims	1-13	YES
	Claims		NO
Inventive step (IS)	Claims	1-13	YES
	Claims		NO
Industrial applicability (IA)	Claims	1-13	YES
	Claims		NO

2. Citations and explanations (Rule 70.7)

Document found to be relevant in the International Search Report:

D1: WO 0156312 A1

D1 describes a method and a system for checking the status of a Mobile Station (MS) in a cellular communication system including a Short Message Service Centre (SMSC); a Home Location Area (HLR); a short message Transmission Server (TS); a short message Service Platform (SP), and a Data Base (DB) (see abstract, and figure 1). The method comprising the steps of sending a query on the status of MS from SP to TS, and delivering a response to MS based on its attainability status (see figure 2a). As stated in D1 (see page 5, lines 29-32, and page 8, lines 4–7), TS can be implemented in the SMSC.

The enclosed new set of claims 1-13 filed with the letter of 11/04/2003 include the following amendments in respect to originally filed claims 1-16:
The new independent claim 1 incorporate the special technical features of original claims 1, 3 and 4 and are supported by the specifications on page 3, lines 18-27 and the description of figure 1B, in page 7, section 2.
The new claim 2 is incorporates the technical features of original claims 2 and 3.
The new claims 3 to 9 correspond to the wording of original claims 5 to 11 with no amendments.
The new independent claim 10 incorporated the technical features of original claims 12, 13, 3, and 4 and is supported by the specifications on page 3, lines 18-27 and the description of figure 1B, on page 7, section 2.

.../...

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of: V

The new claim 11 corresponds to original claim 14.
The new independent claim 12 incorporates the technical features of original claims 13, 15, 3, and 4 and is supported by the specifications on page 3, lines 18-27 and the description of figure 1B, on page 7, section 2.
The new claim 13 corresponds to original claim 16.
Original claims 3, 4 and 13 have been deleted.

New independent claims 1-13 differ from original claims 1-16 in that it is now clearly specified that a query is transmitted to the SMSC for obtaining an attainability status of a mobile terminal, by evaluating connection related data stored in the SMSC, wherein, the connection related data being related to messages pending for delivery to said mobile terminal.
In contrast to D1, and in accordance with new claims 1-13, a query of the HLR is not necessary and is only optional in case the information obtained by querying the SMSC alone is regarded as insufficient to determine the attainability of the mobile terminal, i.e. in case none or only few messages are pending.
In D1, querying the HLR of a network, to check the status of the subscriber is mandatory, whereas no querying in sent to the SMSC for the number of short messages pending for delivery to the mobile terminal.
An important advantage of the claimed invention according to new claims 1-13 is the reduction of data traffic required to obtain the attainability state of a terminal, leading to a more efficient use of radio resources, since only a minimum of network resources are needed to get information on the attainability state of the mobile terminal.
Based on arguments presented above, document D1 which was considered relevant to original claims 1-16, is now considered to represent the general state of the art, and the invention defined in claims 1-13 is not disclosed by this document. The invention in new claims 1-13 is therefore not considered obvious to a person skilled in the art.
The invention according to claims 1-13 is novel, and it involves an inventive step. It also fulfils the requirement of industrial applicability.

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Application no: PCT/IB02/01044
Applicant: Nokia Corporation

Amended Claims

1. Method for executing a communication attempt with a mobile terminal device in accordance with the attainability status of said mobile terminal device in a cellular communication network having a Short Message Service Center SMSC by the steps of:
   - querying said SMSC in said cellular network for obtaining an attainability status of said mobile terminal device, by evaluating connection related data stored in said SMSC, wherein said connection related data being related to messages pending for delivery to said mobile terminal device, and
   - delivering said communication attempt to said mobile terminal device in accordance with said attainability status.

2. Method according to claim 1, wherein said query of said SMSC further comprises a query of a Home Location Register (HLR) of the cellular communication network for an attainability status of said mobile terminal device and wherein said attainability status is obtained by evaluating connection related data stored in said HLR.

3. Method according to claim 1 or 2, wherein said connection related data are related to the connection state of said mobile terminal device.

4. Method according to claim 1 to 3, wherein said data are location related.

5. Method according to anyone of claims 1 to 4, wherein said evaluation comprises the evaluation of data related to the communication to be attempted.

6. Method according to anyone of the preceding claims, wherein said query is executed by initiating a Short Message delivery to said SMSC, said Short Message being destined for said mobile terminal device.

7. Software tool for executing a communication attempt with a mobile terminal device in accordance with the attainability status of said mobile terminal device in a cellular communication network, comprising ~~program code~~ means for carrying out the steps of anyone of claims 1 to 6 when said software tool is implemented in a program run on a Short Message Service Center, Service Center or a network device.

8. Computer program for executing a communication attempt with a mobile terminal device in accordance with the attainability status of said mobile terminal device in a cellular communication network, comprising program code means for carrying out the steps of anyone of claims 1 to 6 when said program is run on a Short Message Service Center, a Service Center or a network device.

9. Computer program product comprising program code means stored on a computer readable medium for carrying out the method of anyone of claims 1 to 6 when said program product is run on a Short Message Service Center, a Service Center or a network device.

10. Short Message Service Center (SMSC), connected to a cellular communication network comprising a Home Location Register (HLR), comprising components for receiving messages, forwarding messages, and querying HLR data of a mobile terminal device, characterized by:
- a component for obtaining data related to the attainability status of a mobile terminal device,
- component for evaluating said data related to the attainability status of a mobile terminal device, to obtain a attainability status by evaluating data being related to messages pending for delivery to said mobile terminal device, and
- a component for delivering messages according to said obtained data related to the attainability status of said terminal device.

11. Short Message Service Center (SMSC) of claim 10, further comprising a component for generating a message according to results from the said evaluating component.

12. Network device connected to a Short Message Service Center (SMSC) of a cellular communication network, comprising components for sending and receiving messages, characterized by:
- a component for generating a message for querying a SMSC for data being related to messages pending for delivery to a mobile terminal device and transferring said data to said network device,
- a component for obtaining an attainability status from said transferred data, and
- a component for delivering communication attempts according to said attainability status.

13. Network device according to claim 12, wherein said cellular network further comprises a Home Location Register (HLR), and wherein said network device further comprises a

component for generating a message for inducing said SMSC to query HLR data of said mobile terminal device and transferring said data to said network device.